

**CLAIMS**

1. A method of detecting the presence of or predisposition to obesity or an associated metabolic disorder in a subject, the method comprising (i) providing a sample from the  
5 subject and (ii) detecting the presence of an alteration in the MAP3K11 gene locus in said sample,.
2. A method of assessing the response of a subject to a treatment of obesity or an associated metabolic disorder, the method comprising (i) providing a sample from the  
10 subject and (ii) detecting the presence of an alteration in the MAP3K11 gene locus in said sample.
3. The method of claim 1 or 2, wherein the presence of an alteration in the MAP3K11 gene locus is detected by sequencing, selective hybridisation and/or selective amplification.  
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4. The method of claim 1 or 2, comprising detecting the presence of an altered MAP3K11 polypeptide.
5. The method of claim 4, comprising contacting the sample with an antibody specific for  
20 said altered MAP3K11 polypeptide and determining the formation of an immune complex.
6. The use of a functional MAP3K11 polypeptide or a nucleic acid encoding the same, in the manufacture of a pharmaceutical composition for treating or preventing obesity or an associated metabolic disorder in a subject.  
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7. A purified or isolated MAP3K11 polypeptide or fragment thereof.
8. A vector comprising a nucleic acid encoding a MAP3K11 polypeptide according to claim 7.  
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9. The vector of claim 8, which is a recombinant virus.
10. A recombinant host cell comprising a vector of claim 8 or 9.

11. A pharmaceutical composition comprising (i) a MAP3K11 polypeptide, a nucleic acid encoding a MAP3K11 polypeptide, a vector of claim 8 or 9 or a recombinant host cell of claim 10 and (iii) a pharmaceutically acceptable carrier or vehicle.
- 5 12. A nucleic acid probe, wherein said nucleic acid is complementary to and specifically hybridises with a nucleic acid encoding an altered MAP3K11 polypeptide
13. A nucleic acid primer, wherein said primer is complementary to and hybridizes specifically to a portion of an altered MAP3K11 gene or RNA,
- 10 14. An antibody, wherein said antibody is specific for an altered MAP3K11 polypeptide or epitope.
- 15 15. A product comprising a nucleic acid probe of any one of claims 12-13 or an antibody of claim 14 immobilised on a substrate.
16. A kit comprising a nucleic acid probe of any one of claims 12, or a primer of claim 13, or an antibody of claim 14 and reagents or a protocol for performing a hybridisation, amplification or an antigen-antibody immune reaction.
- 20 17. A method of selecting biologically active compounds on obesity and associated disorders, said method comprising contacting a test compound with a MAP3K11 polypeptide or gene or a fragment thereof and determining the ability of said test compound to bind the MAP3K11 polypeptide or gene or a fragment thereof.
- 25 18. A method of selecting biologically active compounds on obesity and associated disorders, said method comprising contacting a recombinant host cell expressing a MAP3K11 polypeptide with a test compound, and determining the ability of said test compound to bind said MAP3K11 polypeptide and to modulate the activity of MAP3K11
- 30 polypeptide.
19. A method of selecting biologically active compounds on obesity and associated disorders, said method comprising contacting a test compound with a MAP3K11 gene and

determining the ability of said test compound to modulate the expression of said MAP3K11 gene.

20. A method of selecting biologically active compounds on obesity and associated disorders, said method comprising contacting a test compound with a recombinant host cell comprising a reporter construct, said reporter construct comprising a reporter gene under the control of a MAP3K11 gene promoter, and selecting the test compounds that modulate (e.g. stimulate or reduce) expression of the reporter gene.
21. Method according any one of claims 17-20, wherein said MAP3K11 gene or polypeptide or a fragment thereof is an altered or mutated MAP3K11 gene or polypeptide or a fragment thereof comprising the alteration or mutation.
22. Method according any one of claims 18-20, wherein said modulation is an activation.
23. Method according any one of claims 18-20, wherein said modulation is an inhibition.
24. The use of a compound selected from the group consisting of an agonist or an antagonist of MAP3K11, an antisense or a RNAi of MAP3K11, an antibody or a fragment or a derivative thereof specific to a MAP3K11 polypeptide in the manufacture of a pharmaceutical composition for treating or preventing obesity or an associated disorder in a subject.